

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A dishwasher for determining rotor blocking, pump felt sticking, filter clogging, increase of a viscosity or the amount of foam in a washing water that influence the washing performance negatively, comprising

a wash tub in which the dishes to be washed are placed,

a sump which is in the lower section of the wash tub, where the water present in the wash tub is collected during washing operation,

a circulation pump, driven by an electric motor with variable rpm and changeable direction of rotation, turning the water in the sump back to the wash tub,

a drain pump for draining the water collected in the sump at the end of the washing operation out of the dishwasher and

a filter for preventing dirt from getting into the circulation during washing,

and a control card, tracing the change of the current (I) drawn by the circulation pump from a network to change the rpm and/or direction of rotation of the circulation pump.

Claim 2 (cancelled)

Claim 3 (cancelled)

Claim 4 (cancelled)

Claim 5 (cancelled)

Claim 6 (cancelled)

Claim 7 (currently amended): The dishwasher in claim 1 wherein the control card further comprises a control method, used when the current (I) drawn by the circulation pump from the network suddenly increases and exceeds a limit current value (Imax) or that the motor stops completely, comprising the steps of,
with the start-up current (Io) enabling the circulation pump to shift from an inoperative position to ~~the~~ an operating position:

selected from the group consisting of making start-up attempts of a previously specified number (n) in the positive rotation direction and making n start-up attempts in the positive rotation direction by increasing the torque with a current higher than the start-up current (Io), and, if no success is obtained to the operating position, making n start-up attempts in the negative rotation direction with the start-up current (Io) and making n start-up attempts in the negative rotation direction by increasing the torque with a current higher than the start-up current (Io).

Claim 8 (currently amended): The dishwasher in claim 1 wherein the control card further comprises a control method for deciding to replace the washing water comprising the steps of:

gradually increasing current (I) until the current exceeds a certain limit current value (Imax) to determine whether the viscosity of the washing water has increased according to the current (I) amount, letting the circulation pump continue its operation at low rpm after it is decided that the viscosity of the washing water has ~~water-is~~ increased, draining the washing water and taking clean water into the dishwasher.

Claim 9 (currently amended): The dishwasher in claim 1 wherein the control card further comprises a control method comprising the steps of:

detecting that the current (I) drawn by the circulation pump from the network fluctuates within a current limit proper range below I_{max} of I_{min} to I_{max} ,

taking some water into the sump,

lowering the rpm of the circulation pump until the value where it can operate without absorbing air and continuing with the washing operation.

Claim 10 (currently amended): The dishwasher in claim 1 wherein the control card further comprises a control method comprising the steps of:

detecting that the current (I) drawn by the circulation pump from the network is fluctuating and is gradually decreasing or increasing with respect to a nominal current (I_{nom}) or has high amplitude fluctuations ~~with~~,

decreasing the rpm of the circulation pump to lower the current fluctuations to a preset level ~~near the nominal current to provide such~~ that the foam remains above the sucking level of the circulation pump in the sump and continuing of the washing operation with the circulation pump having enough water to prevent foam.

Claim 11 (currently amended): The dishwasher in claim 1 wherein the control card further comprises a control method comprising the steps of:

detecting a decreasing change of the current (I), with small or no network fluctuations, drawn by the circulation pump from the network with respect to nominal current (I_{nom}),

taking some water into the dishwasher and

lowering the rpm of the circulation pump and

continuing with the normal washing operation,

deciding that the filter cannot be cleaned in the normal cycle if it is determined that the drawn current (I) does not return to normal, which is the detected decreased change of the current (I) with respect nominal current (I_{nom}),

draining the water completely,

taking clean water into the dishwasher and

passing the clean water through the filter to wash the filter and

draining the water.

Claim 12 (currently amended): A dishwasher (1) according to claim 9 wherein the control method determines if the rotor is blocked or its rotation is disturbed due to sticking of the pump felt or jamming of a solid piece comprising the steps of:

measuring if the current (I) drawn by the circulation pump from the network suddenly increases and exceeds a limit current value (Imax) or that the motor stops completely, and with the start-up current (Io) enabling the circulation pump to shift from an inoperative position to ~~the~~ an operating position,

selecting from the group consisting of making start-up attempts of a previously specified number (n) in the positive rotation direction and making n start-up attempts in the positive rotation direction by increasing the torque with a current higher than the start-up current (Io), and, if no success is obtained to the operating position, making n start-up attempts in the negative rotation direction with the start-up current (Io) and making n start-up attempts in the negative rotation direction by increasing the torque with a current higher than the start-up current (Io).

Claim 13 (currently amended): A dishwasher (1) according to Claim 9 wherein the control method determines if dirt and oil getting into the washing water and increasing the viscosity of the washing water by the steps of

determining an increasing deviation of the current (I) drawn by the circulation pump with respect to nominal current (I_{nom}) is observed by the control card, and

determining whether the viscosity of the washing water has increased according to the current (I) amount by gradually increasing current (I) until the current exceeds a certain limit current value (I_{max}),

letting the circulation pump continue its operation at low rpm after it is decided that the viscosity of the washing water has increased, draining the washing water and taking clean water into the dishwasher.

Claim 14 (currently amended): A dishwasher ~~[[(I)]]~~ according to Claim 9 wherein the control method determines if the filter in the sump is partly clogged and the circulation pump sucks an air-water mixture when ~~it is~~ detected by the control card comprising the steps of:

determining that the current (I) drawn by the circulation pump from the network fluctuates within a current limit proper range ~~below I_{max} of I_{min} to I_{max} ,~~

taking some water into the sump, and

lowering the rpm of the circulation pump until the value where it can operate without absorbing air and continuing with the washing operation.

Claim 15 (currently amended): A dishwasher according to Claim 9 wherein the control method determines if the amount of foam in the washing water prevents the circulation pump from proper operation comprising the steps of:

detecting that the current (I) drawn by the circulation pump from the network is fluctuating and is gradually decreasing or increasing with respect to a nominal current (I_{nom}) ~~or when waves with~~ has high amplitude fluctuations ~~with~~, and

decreasing the rpm of the circulation pump to lower the current fluctuations to a preset level ~~near the nominal current to provide such~~ that the foam remains above the sucking level of the circulation pump in the sump and continuing of the washing operation with the circulation pump having enough water to prevent foam.

Claim 16 (currently amended): A dishwasher according to Claim 9 wherein the control method determines if the filter is clogged comprising the steps of:

detecting a decreasing change of the current (I), with small or no network fluctuations, drawn by the circulation pump from the network with respect to nominal current (I_{nom}),

taking some water into the dishwasher and

lowering the rpm of the circulation pump and

continuing with the normal washing operation,

deciding that the filter cannot be cleaned in the normal cycle if it is determined that the drawn current (I) does not return to normal, which is the detected decreased change of the current (I) with respect nominal current (I_{nom}),

draining the water completely,

taking clean water into the dishwasher and

passing the clean water through the filter to wash the filter and

draining the water.

Claim 17 (currently amended): The dishwasher in claim 9 wherein the control card further comprises a control method, used when the current (I) drawn by the circulation pump from the network suddenly increases and exceeds a limit current value (I_{max}) or that the motor stops ~~completely~~ completely, comprising the steps of:

with the start-up current (I_0) enabling the circulation pump to shift from an inoperative position to the an operating position:

selected from the group consisting of making start-up attempts of a previously specified number (n) in the positive rotation direction and making n start-up attempts in the positive rotation direction by increasing the torque with a current higher than the start-up current (I_0), and, if no success is obtained to the operating position, making n start-up attempts in the negative rotation direction with the start-up current (I_0) and making n start-up attempts in the negative rotation direction by increasing the torque with a current higher than the start-up current (I_0).

Claim 18 (currently amended): The dishwasher in claim 9 wherein the control card further comprises a control method for to replace the washing water comprising the steps of:

gradually increasing current (I) until the current exceeds a certain limit current value (I_{max}) to determine whether the viscosity of the washing water has increased according to the current (I) amount, letting the circulation pump continue its operation at low rpm after it is decided that the viscosity of the washing water has ~~water is~~ increased, draining the washing water and taking clean water into the dishwasher.

Claim 19 (currently amended): The dishwasher in claim 9 wherein the control card further comprises a control method comprising the steps of:

detecting that the current (I) drawn by the circulation pump from the network is fluctuating and is gradually decreasing or increasing with respect to a nominal current (I_{nom}) or has high amplitude fluctuations,

decreasing the rpm of the circulation pump to lower the current fluctuations to a preset level ~~near the nominal current to provide such~~ that the foam remains above the sucking level of the circulation pump in the sump and continuing of the washing operation with the circulation pump having enough water to prevent foam.

Claim 20 (currently amended): The dishwasher in claim 9 wherein the control card further comprises a control method comprising the steps of:

detecting a decreasing change of the current (I) drawn by the circulation pump from the network with respect to nominal current (I_{nom})

taking some water into the dishwasher and lowering the rpm of the circulation pump and continuing with the normal washing operation,

deciding that the filter cannot be cleaned if it is determined that the drawn current (I) does not return to normal, which is the detected decreased change of the current (I) with respect nominal current (I_{nom}), and then washing the filter by draining the water completely, taking clean water and making it pass through the filter.